

CLAIMS

What is claimed is:

1. A method of probabilistic defect isolation in a system, comprising:
 - identifying a plurality of resources, each resource in the plurality of resources having at least one characteristic, each resource in the plurality of resources being defined to be good if the characteristic of that resource meets a predetermined criterion and being otherwise defined to be bad;
 - defining a test to apply to a group of the plurality of resources, wherein the test is defined to be passed if each resource in the group of the plurality of resources to which the test is applied is good;
 - assigning to each resource in the group of the plurality of resources an initial probabilistic estimate of the likelihood that that resource is good;
 - assigning a probabilistic estimate of the likelihood that the group of the plurality of resources might accidentally pass the test;
 - iteratively performing the test on various groups of the plurality of resources; and
 - determining a probabilistic estimate that each of the resources in the group of the plurality of resources is good based on the performance of the test on the group of the plurality of resources.

2. The method of claim 1, comprising counting a number of iterative tests and a number of particular test outcomes.
3. The method of claim 2, comprising counting a number of successful test outcomes.
4. The method of claim 2, comprising determining the probabilistic estimate that each of the resources in the group of the plurality of resources is good by determining a ratio of the number of iterative tests and the number of particular test outcomes.
5. The method of claim 2, comprising counting the number of iterative tests and the number of particular test outcomes as summations of probabilities.
6. The method of claim 1, comprising counting a number of iterative tests by increasing the number of iterative tests for each iterative test by a value based on the probabilistic estimate of the likelihood that the group of the plurality of resources might accidentally pass the test.
7. The method of claim 1, comprising counting a number of particular test outcomes by increasing the number of particular test outcomes for each particular outcome by a value based on the probabilistic estimate of the likelihood that the group of the plurality of resources might accidentally pass the test.

8. The method of claim 1, comprising selecting resources such that a probabilistic value of an outcome of the performance of the test approximately equals a value.

9. The method of claim 1, comprising selecting resources using a graph walking system.

10. The method of claim 1, comprising determining the probabilistic estimate that each of the resources in the group of the plurality of resources is good based on the probabilistic estimate of the likelihood that the group of the plurality of resources might accidentally pass the test.

11. A system, comprising:

a set that comprises a plurality of resources, each of the plurality of resources having at least one characteristic, each of the plurality of resources being defined to be good if the characteristic of that resource meets a predetermined criterion and being otherwise defined to be bad;

means for assigning to each resource in a group of the plurality of resources an initial probabilistic estimate of the likelihood that each of the resources in the group of the plurality of resources is good;

means for iteratively performing a test on various groups of the plurality of resources; and

means for determining a probabilistic estimate that each of the resources in the groups of the plurality of resources is good based on the

performance of the test on the groups of the plurality of resources and based on a probabilistic estimate of the likelihood that the group of the plurality of resources might accidentally pass the test.

12. The system of claim 11, comprising means for selecting resources such that a probabilistic value of an outcome of the performance of the test approximately equals a value.

13. The system of claim 11, comprising means for determining the probabilistic estimate of the likelihood that the group of the plurality of resources might accidentally pass the test.

14. A computer program for probabilistic defect isolation in a system, comprising:

a tangible medium;

an assigning module stored on the tangible medium, the assigning module being adapted to assign to each resource in a group of a plurality of resources an initial probabilistic estimate of the likelihood that each of the resources in the group of the plurality of resources is good, the resource being defined to be good if a characteristic of that resource meets a predetermined criterion and being otherwise defined to be bad;

an iterative module stored on the tangible medium the iterative module being adapted to iteratively perform a test on various groups of the plurality of resources; and

an estimate module stored on the tangible medium the estimate module being adapted to determine a probabilistic estimate that each of the resources in the group of the plurality of resources is good based on the performance of the test on the group of the plurality of resources and based on a probabilistic estimate of the likelihood that the group of the plurality of resources might accidentally pass the test.

15. The computer program of claim 14, comprising a counting module stored on the tangible medium and adapted to count a number of iterative tests and a number of particular test outcomes.

16. The computer program of claim 15, comprising a probability determining module stored on the tangible medium adapted for determining the probabilistic estimate that each of the resources in the group of the plurality of resources is good by determining a ratio of the number of iterative tests and the number of particular test outcomes.

17. The computer program of claim 14, comprising a counting module stored on the tangible medium adapted for counting a number of iterative tests and a number of particular test outcomes as summations of probabilities.

18. The computer program of claim 14, comprising a counting module stored on the tangible medium and adapted for counting a number of iterative tests by increasing the number of iterative tests for each iterative test by a value based

on the probabilistic estimate of the likelihood that the group of the plurality of resources might accidentally pass the test.

19. The computer program of claim 14, comprising a counting module stored on the tangible medium adapted for counting a number of particular test outcomes by increasing the number of particular test outcomes for each particular outcome by a value based on the probabilistic estimate of the likelihood that the group of the plurality of resources might accidentally pass the test.

20. The computer program of claim 14, comprising a selection module stored on the tangible medium adapted for selecting resources such that a probabilistic value of an outcome of the performance of the test approximately equals a value.

21. The computer program of claim 14, comprising a second estimate module stored on the tangible medium being adapted to determine the probabilistic estimate of the likelihood that the group of the plurality of resources might accidentally pass the test.

22. A computer system for probabilistic defect isolation, comprising:
a computer;
an assigning module that is adapted to assign to each resource in a group of
a plurality of resources an initial probabilistic estimate of the
likelihood that each of the resources in the group of the plurality of
resources is good, the resource being defined to be good if a

characteristic of that resource meets a predetermined criterion and being otherwise defined to be bad;

an iterative module being adapted to iteratively perform a test on various groups of the plurality of resources; and

an estimate module being adapted to determine a probabilistic estimate that each of the resources in the group of the plurality of resources is good based on the performance of the test on the group of the plurality of resources and based on a probabilistic estimate of the likelihood that the group of the plurality of resources might accidentally pass the test.

23. The computer system of claim 22, comprising a counting module adapted to count a number of iterative tests and a number of particular test outcomes.

24. The computer system of claim 23, comprising a probability determining module adapted for determining the probabilistic estimate that each of the resources in the group of the plurality of resources is good by determining a ratio of the number of iterative tests and the number of particular test outcomes.

25. The computer system of claim 22, comprising a counting module adapted for counting a number of particular test outcomes by increasing the number of particular test outcomes for each particular outcome by a value of one minus the probabilistic estimate of the likelihood that the group of the plurality of resources might accidentally pass the test.

26. The computer system of claim 22, comprising a selection module adapted for selecting resources such that a probabilistic value of an outcome of the performance of the test approximately equals a value.

27. The computer system of claim 22, comprising a selection module adapted for selecting resources using a graph walking system.